

# I-Chao Shen

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## Research Interests

Computer graphics, vector graphics, data-driven 2D/3D geometry analysis and processing, machine learning.

## Education

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| <b>National Taiwan University</b><br><i>Ph.D.</i> in Computer Science<br>Advisor: Bing-Yu Chen.<br>Thesis: 2D Visual Content Design Driven by Human-Guided Optimization                     | <b>Taipei, Taiwan</b><br><i>Sep 2017 - Dec. 2020</i> |
| <b>National Taiwan University</b><br><i>Master in Information Management and MBA</i><br>Advisor: Bing-Yu Chen.<br>Thesis: Perspective-aware Warping for Seamless Stereoscopic Image Cloning | <b>Taipei, Taiwan</b><br><i>Sep 2009 - June 2011</i> |
| <b>National Taiwan University</b><br><i>Bachelor in Information Management</i>  | <b>Taipei, Taiwan</b><br><i>Sep 2005 - June 2009</i> |

## Experiences

|   |                                       |
|---|---------------------------------------|
| <b>Assistant Professor</b> , Tokyo, Japan<br>Dept. of Computer Science, The University of Tokyo                                 | <i>Apr. 2023 -</i>                    |
| <b>Project Assistant Professor</b> , Tokyo, Japan<br>Dept. of Creative Informatics, The University of Tokyo                     | <i>Sep. 2022 - Mar. 2023</i>          |
| <b>Postdoctoral researcher - JSPS Foreign Researchers Fellowship</b> , Tokyo, Japan<br>Host : Takeo Igarashi                    | <i>Dec. 2020 - Aug. 2022</i>          |
| <b>Research Visitor - JST CREST Project</b> , Tokyo, Japan<br>Supervisor : Takeo Igarashi                                       | <i>Feb 2018 - July 2018, Aug 2019</i> |
| <b>Research Assistant - CMLab, National Taiwan University</b> , Taipei, Taiwan<br>Supervisor : Bing-Yu Chen                     | <i>Apr 2017 - July 2017</i>           |
| <b>Research Assistant - Imager Lab, The University of British Columbia</b> ,<br>Vancouver, Canada<br>Supervisor : Alla Sheffer  | <i>Sep 2014 - Mar 2017</i>            |
| <b>Research Intern - Imagination Lab, Adobe Research</b> , San Jose, CA<br>Supervisor : Nathan Carr, Duygu Ceylan, Zhaowen Wang | <i>May 2015 - Aug 2015</i>            |
| <b>Research Assistant - CITI, Academia Sinica</b> , Taipei, Taiwan<br>Supervisor : Wen-Huang Cheng                              | <i>Sep 2011 - July 2014</i>           |

## Publications

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|---|--|
| <b>GarmentImage: Raster Encoding of Garment Sewing Patterns with Diverse Topologies</b><br>Yuki Tatsukawa, Anran Qi, <a href="#">I-Chao Shen</a> , Takeo Igarashi<br>SIGGRAPH 2025 (Conference Track)   |  |
| <b>The Mokume Dataset and Inverse Modeling of Solid Wood Textures</b><br>Maria Larsson, Hodaka Yamaguchi, Ehsan Pajouheshgar, <a href="#">I-Chao Shen</a> , Kenji Tojo, Chia-Ming Chang, Lars Hansson, Olof Broman, Takashi Ijiri, Ariel Shamir, Wenzel Jakob, Takeo Igarashi |  |

SIGGRAPH 2025 (Transaction on Graphics)

**NeRF Is a Valuable Assistant for 3D Gaussian Splatting**

Shuangkang Fang, [I-Chao Shen](#), Takeo Igarashi, Yufeng Wang, ZeSheng Wang, Yi Yang, Wenrui Ding, Shuchang Zhou  
ICCV 2025

**MeshLLM: Empowering Large Language Models to Progressively Understand and Generate 3D Mesh**

Shuangkang Fang, [I-Chao Shen](#), Yufeng Wang, Yi-Hsuan Tsai, Yi Yang, Shuchang Zhou, Wenrui Ding, Takeo Igarashi, Ming-Hsuan Yang  
ICCV 2025

**FontCraft: Multimodal Font Design Using Interactive Bayesian Optimization**

Yuki Tatsukawa, [I-Chao Shen](#), Mustafa Doga Dogan, Anran Qi, Yuki Koyama, Ariel Shamir, Takeo Igarashi  
CHI 2025

**CompAct: Designing Interconnected Compliant Mechanisms with Active Material Integration**

Humphrey Yang, [I-Chao Shen](#), Nikolas Martelaro, Bo Zhu, Haoran Xie, Takeo Igarashi, Lining Yao  
CHI 2025

**Approximating Procedural Models of 3D Shapes with Neural Networks**

Ishtiaque Hossain, [I-Chao Shen](#), Oliver van Kaick  
Eurographics 2025

**Interactive Multilayer Gaussian Garments for Low-Cost Try-On**

Ryan Zesch, [I-Chao Shen](#), Haoran Xie, Bo Zhu, Shinjiro Sueda, Takeo Igarashi  
Graphics Interface (GI) 2025

**FontCLIP: A Semantic Typography Visual-Language Model for Multilingual Font Applications**

Yuki Tatsukawa, [I-Chao Shen](#), Anran Qi, Yuki Koyama, Takeo Igarashi, Ariel Shamir  
Eurographics 2024

**Learned Inference of Annual Ring Pattern of Solid Wood**

Maria Larsson\*, Takashi Ijiri\*, [I-Chao Shen](#), Hironori Yoshida, Ariel Shamir, Takeo Igarashi (\*: joint first authors)  
Computer Graphics Forum 2024

**Virtual Measurement Garment for Per-Garment Virtual Try-On**

Zaiqiang Wu, Jingyuan Liu, Long Hin Toby Chong, [I-Chao Shen](#), Takeo Igarashi  
Graphics Interface 2024

**Improving Cache Placement for Efficient Cache-based Rendering**

Yu-Ting Wu, [I-Chao Shen](#)  
The Visual Computer 2024

**StylePart: Image-based Shape Part Manipulation**

[I-Chao Shen](#), Li-Wen Su, Yu-Ting Wu, Bing-Yu Chen  
The Visual Computer 2024

**NeRF-In: Free-Form NeRF Inpainting with RGB-D Priors**

[I-Chao Shen](#)\*, Hao-Kang Liu\*, Bing-Yu Chen (\*: joint first authors)  
IEEE Computer Graphics and Applications (CG&A) 2023

**Palette-Based and Harmony-Guided Colorization for Vector Icons**

Miao Lin\*, [I-Chao Shen](#)\*, Hsiao-Yuan Chin, Ruo-Xi Chen, Bing-Yu Chen (\*: joint first authors)  
Computer Graphics Forum (Proceeding of Pacific Graphics 2023)

**Data-guided Authoring of Procedural Models of Shapes**

Ishtiaque Hossain, [I-Chao Shen](#), Takeo Igarashi, Oliver van Kaick  
Computer Graphics Forum (Proceeding of Pacific Graphics 2023)

**EvIcon: Designing High-Usability Icon with Human-in-the-loop Exploration and IconCLIP**

I-Chao Shen, Fu-Yin Cherng, Takeo Igarashi, Wen-Chieh Lin, Bing-Yu Cheng

Computer Graphics Forum Volume 42, Issue 6, September 2023

**360MVSNet: Deep Multi-view Stereo Network with 360° Images for Indoor Scene Reconstruction**

Ching-Ya Chiu, Yu-Ting Wu, I-Chao Shen, Yung-Yu Chuang

IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2023 (Algorithm Track)

**ClipGen: A Deep Generative Model for Clipart Vectorization and Synthesis**

I-Chao Shen, Bing-Yu Chen

IEEE Transactions on Visualization and Computer Graphics (TVCG), pp. 4211-4224, vol. 28, Dec. 2022

**StyleFaceUV: a 3D Face UV Map Generator for View-Consistent Face Image Synthesis**

Wei-Chieh Chung, Jian-Kai Zhu, I-Chao Shen, Yu-Ting Wu, Yung-Yu Chuang

The British Machine Vision Conference (BMVC) 2022

**ODEN: Live Programming for Neural Network Architecture Editing**

Chunqi Zhao, I-Chao Shen, Tsukasa Fukusato, Jun Kato, Takeo Igarashi

Proceeding of ACM Intelligent User Interfaces (IUI) 2022

**Per Garment Capture and Synthesis for Real-time Virtual Try-on**

Toby Chong, I-Chao Shen, Nobuyuki Umetani, Takeo Igarashi

Proceeding of User Interface Software and Technology (UIST) 2021

**Data-driven Sketch Beautification with Neural Feature Representation**

I-Chao Shen

IEEE Computer Graphics and Applications (CG&A) 2021

**Multi-Resolution Shared Representative Filtering for Real-Time Depth Completion**

Yu-Ting Wu, Tzu-Mao Li, I-Chao Shen, Hong-Shiang Lin, Yung-Yu Chuang

High-Performance Graphics (HPG) 2021

**ClipFlip : Multi-view Clipart Design**

I-Chao Shen, Kuan-Hung Liu, Li-Wen Su, Yu-Ting Wu, and Bing-Yu Chen

Computer Graphics Forum, Volume 40, Issue 1, Feb 2021, arXiv:2008.12933 [cs.GR]

**Interactive Optimization of Generative Image Modeling using Sequential Subspace Search and Content-based Guidance**

Toby Chong Long Hin\*, I-Chao Shen\*, Issei Sato, and Takeo Igarashi (\*: joint first authors)

Computer Graphics Forum, Volume 40, Issue 1, Feb 2021, arXiv:1906.09840 [cs.GR]

**ZomeFab: Cost-effective Hybrid Fabrication with Zometools**

I-Chao Shen, Ming-Shiuan Chen, Chun-Kai Huang, and Bing-Yu Chen

Computer Graphics Forum, Volume 39, Issue 1, Feb 2020

**Director-360: Introducing Camera Handling to 360 Cameras**

Hao-Juan Huang, I-Chao Shen, and Liwei Chan

in proceeding of MobileHCI 2020

**Perception-Driven Semi-Structured Boundary Vectorization**

Shayan Hoshyari, Edoardo Dominici, Alla Sheffer, Nathan Carr, Duygu Ceylan, Zhaowen Wang, I-Chao Shen

ACM Transactions on Graphics (Proceedings of SIGGRAPH 2018).

**High-resolution 360 Video Foveated Stitching for Real-time VR**

Wei-Tse Lee\*, Hsin-I Chen\*, Ming-Shiuan Chen, I-Chao Shen and Bing-Yu Chen

Computer Graphics Forum (Proceedings of Pacific Graphics 2017)

**A Scalable Active Framework for Region Annotation in 3D Shape Collections**

Li Yi, Vladimir G. Kim, Duygu Ceylan, I-Chao Shen, Mengyan Yan, Hao Su, Cewu Lu, Qixing Huang, Alla Sheffer, and Leonidas Guibas

ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2016)

**Retargeting 3D Objects and Scenes with a General Framework**

Chun-Kai Huang, Yi-Ling Chen, I-Chao Shen, and Bing-Yu Chen

Computer Graphics Forum (Proceedings of Pacific Graphics 2016)

**Data-driven Handwriting Synthesis in a Conjoined Manner**

Hsin-Yi Chen, Tse-Ju Lin, I-Chao Shen, and Bing-Yu Chen

Computer Graphics Forum (Proceedings of Pacific Graphics 2015)

**Gestalt Rule Feature Points**

I-Chao Shen and Wen-Huang Cheng

IEEE Transactions on Multimedia (TMM), 17(4), pp. 526-537, 2015

**Geometrically Consistent Stereoscopic Image Editing using Patch-based Synthesis**

Sheng-Jie Luo, Ying-Tse Sun, I-Chao Shen, Bing-Yu Chen, and Yung-Yu Chuang

IEEE Transactions on Visualization and Computer Graphics (TVCG), 21(1), pp. 56-67, 2015

**Stroke-guided Image Synthesis for Skeletal Structure Editing**

Sheng-Jie Luo, Chin-Yu Lin, I-Chao Shen, and Bing-Yu Chen

Computer Graphics Forum (Proceedings of Pacific Graphics 2013)

**Perspective-Aware Warping for Seamless Stereoscopic Image Cloning**

Sheng-Jie Luo, I-Chao Shen, Bing-Yu Chen, Wen-Huang Cheng, and Yung-Yu Chuang

ACM Transactions on Graphics (Proceedings of SIGGRAPH Asia 2012).

## Technical Reports and Preprints

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**Low-Barrier Dataset Collection with Real Human Body for Interactive Per-Garment Virtual Try-On**

Zaiqiang Wu, Yechen Li, Jingyuan Liu, Yuki Shibata, Takayuki Hori, I-Chao Shen, Takeo Igarashi

arxiv preprint ([arxiv:2506.10468](https://arxiv.org/abs/2506.10468))

**AvatarPerfect: User-Assisted 3D Gaussian Splatting Avatar Refinement with Automatic Pose Suggestion**

Jotaro Sakamiya, I-Chao Shen, Jinsong Zhang, Mustafa Doga Dogan, Takeo Igarashi

arxiv preprint ([arxiv:2412.1560](https://arxiv.org/abs/2412.1560))

**AutoPoly: Predicting an Artist-Compatible Polygonal Mesh Construction Sequence from a Silhouette Image**

I-Chao Shen, Yu Ju Chen, Oliver van Kaick, Takeo Igarashi

arxiv preprint ([arxiv:2203.15233](https://arxiv.org/abs/2203.15233))

## Workshop Papers, Short Papers, Posters

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**Designing Reconfigurable Joints**

Atsushi Maruyama, Maria Larsson, I-Chao Shen, Takeo Igarashi

SIGGRAPH ASIA 2024 Technical Communication (Honorable Mention Award)

**DualAvatar: Robust Gaussian Splatting Avatar with Dual Representation**

Jinsong Zhang, I-Chao Shen, Jotaro Sakamiya, Yu-Kun Lai, Takeo Igarashi, Kun Li

SIGGRAPH ASIA 2024 Poster Program

**Generating Font Variations Using Latent Space Trajectory**

Sotaro Kanazawa, I-Chao Shen, Yuki Tatsukawa, Takeo Igarashi

SIGGRAPH ASIA 2024 Poster Program

**3D Reconstruction from Sketch with Hidden Lines by Two-Branch Diffusion Model**

Yuta Fukushima, Anran Qi, I-Chao Shen, Yulia Gryaditskaya, Takeo Igarashi

Eurographics 2024 Short Paper

**MicroGlam: Microscopic Skin Image Dataset with Cosmetics**

Toby Chong, Alina Chadwick, [I-Chao Shen](#), Haoran Xie, Takeo Igarashi  
SIGGRAPH ASIA 2023 Technical Communication

**Computational Design of Nebuta-like Paper-on-Wire Artworks**

Naoki Agata, Anran Qi, Yuta Noma, [I-Chao Shen](#), Takeo Igarashi  
SIGGRAPH 2023 Poster Program

**Palette-Based Colorization for Vector Icons**

Miao Lin, [I-Chao Shen](#), Hsiao-Yuan Chin, Ruo-Xi Chen, Bing-Yu Chen  
SIGGRAPH 2023 Poster Program

**OVERPAINT: Automatic Multi-Layer Stencil Generation without Bridges**

Yuta Fukushima, Anran Qi, [I-Chao Shen](#), Takeo Igarashi  
SIGGRAPH ASIA 2022 Technical Communication

**Guided Image Weathering using Image-to-Image Translation**

Li-Yu Chen, [I-Chao Shen](#), and Bing-Yu Chen  
SIGGRAPH ASIA 2021 Technical Communication

**Real-time Image-based Virtual Try-on with Measurement Garment**

Toby Chong, [I-Chao Shen](#), Yunfei Qian, Nobuyuki Umetani, Takeo Igarashi  
SIGGRAPH ASIA 2021 Emerging Technologies

**Transferring Deep Reinforcement Learning with Adversarial Objective and Augmentation**

[I-Chao Shen](#), Shu-Hsuan Hsu, and Bing-Yu Chen  
IJCAI-PRICAI 2020 Workshop on Knowledge-Based Reinforcement Learning (KBRL)

**Large-scale fabrication with interior zometool structure**

Ming-Shiuan Chen, [I-Chao Shen](#), Chun-Kai Huang, and Bing-Yu Chen  
ACM SIGGRAPH Poster Program 2018

**A Deep Learning Based Method For 3D Human Pose Estimation From 2D Fisheye Images**

Ching-Chun Chen, Chia-Min Wu, [I-Chao Shen](#), and Bing-Yu Chen.  
ACM IUI Poster Program 2018

**Retargeting 3D objects and scenes**

Chun-Kai Huang, Yi-Ling Chen, [I-Chao Shen](#), and Bing-Yu Chen  
ACM SIGGRAPH Poster Program 2015

**Painting Photolization**

Chien-Wen Jung, [I-Chao Shen](#), Sheng-Jie Luo, Bing-Yu Chen, and Wen-Huang Cheng  
ACM SIGGRAPH ASIA Poster Program 2013

**Texturing and Deforming Meshes with Casual Images**

[I-Chao Shen](#), Yi-Hua Wang, Yu-Mei Chen, Bing-Yu Chen, and Wen-Huang Cheng  
ACM SIGGRAPH ASIA Poster Program 2012

**User-Assisted Disparity Maps**

Hsin-Yi Chen, Yi-Shan Lin, [I-Chao Shen](#), Sheng-Jie Luo, Wen-Huang Cheng and Bing-Yu Chen  
Pacific Graphics 2012 short paper

**MusicSpace: You “Play” The Music**

Chun-Yu Tsai, Hung-Jung Lin, Tzu-Hao Kuo, Kai-Yin Cheng, [I-Chao Shen](#) Bing-Yu Chen, and Rung-Huei Liang  
ACM SIGGRAPH Poster Program 2010

**Patent**

**Smoothing images using machine learning**

Nathan A Carr, Zhaowen Wang, Duygu Ceylan, [I-Chao Shen](#)  
United States Patent, No. 9799102, issued October 24, 2017.

## Grants

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|   |             |
|---|-------------|
| JSPS Kakenhi Grant-in-Aid for Young Scientists, Japan                       | 2023 - 2028 |
| AIP Challenge Researcher, Japan Science and Technology Agency (JST), Japan. | 2021 - 2022 |
| JSPS Grant-in-Aid for Scientific Research for JPSP foreign fellow, Japan.   | 2021 - 2023 |

## Honors

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|   |             |
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| IPPR Best Ph.D. dissertation award, Honorable mention | 2021        |
| JSPS Postdoctoral Fellowship for Foreign Researchers  | 2020 - 2022 |
| MediaTek Fellowship                                   | 2017 - 2020 |

## Invited Talks

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| Tailored Computational Visual Content Creation,<br><i>ISID (International Symposium on Intelligence Design) 2024</i>   | Mar. 2024  |
| Tailored Computational Visual Content Creation,<br><i>BAI Research Seminar, Institute for AI and Beyond, The University of Tokyo</i>   | Feb. 2024  |
| Computer Graphics around you everyday and how to become a Computer Graphics researcher,<br><i>Chikushigaoka High School, Fukuoka, Japan</i>  | July. 2022 |
| Computer Graphics around you everyday and how to become a Computer Graphics researcher,<br><i>Tokyo Metropolitan Tama High School of Science and Technology, Tokyo, Japan</i><br>JSPS science dialogue program | July. 2022 |
| Per Garment Capture and Synthesis for Real-time Virtual Try-on,<br><i>JST CREST 8th Research Area Meeting</i>  | Sep. 2021  |
| 2D Visual Content Design Driven by Human-Guided Optimization,<br><i>The University of Tokyo, Tokyo, Japan</i>  | Apr. 2021  |

## Media

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|   |            |
|---|------------|
| <b>Per Garment Capture and Synthesis for Real-time Virtual Try-on</b> | 2021, 2022 |
| - BS フジ - ガリレオ X 第 259 回「現実空間 × 仮想空間二つの世界を重ねる最新技術」(JP)                |            |
| - JST News  |            |
| - NIKKEI (JP)   |            |
| - ZAIKEI (JP)   |            |
| - TechCrunch Japan (JP)   |            |
| - Tii 技術情報 (JP)   |            |
| - Independent TV (UK)   |            |

## Professional Services

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- **Technical Paper Committee and others:**
  - SIGGRAPH ASIA Technical Papers Committee (2025) [\[link\]](#)
  - Pacific Graphics Program Committee (2025) [\[link\]](#)
  - Eurographics Short Papers International Program Committee (IPC) (2025) [\[link\]](#)
  - SIGGRAPH Technical Papers COI Coordinator (2025) [\[link\]](#)
  - SIGGRAPH ASIA Technical Papers Committee (2024) [\[link\]](#)
  - AAAI (2023 [\[link\]](#), 2024 [\[link\]](#), 2025 [\[link\]](#))
- **Reviewer:**
  - SIGGRAPH, SIGGRAPH ASIA

- NeurIPS, ICLR, ICML
- Eurographics
- CHI
- Pacific Graphics
- WACV
- BMVC
- Transaction on Multimedia (TMM)
- Transaction on Visualization and Computer Graphics (TVCG)

## References

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### **Takeo Igarashi**

Professor, Department of Computer Science and Graduate School of Information Science and Technology, The University of Tokyo, Japan

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### **Bing-Yu Chen**

Professor in Department of Computer Science and Engineering / Information Management, National Taiwan University

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### **Yung-Yu Chuang**

Professor in Department of Computer Science and Engineering, National Taiwan University

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